

REMARKS

Claims 1-45 are pending in the present application. In the Office Action, claims 1-6, 8-12, 14-19, 22-32, 36, and 39-45 were rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Bode, et al (U.S. Patent No. 6,823,231). Claims 7, 13, 21, and 38 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Bode in view of Markle, et al (U.S. Patent Publication No. 2004/0102857). The Examiner's rejections are respectfully traversed.

Claims 1, 9, 15, and 35 set forth, among other things, performing a tuning process for an ion implant tool. The tuning process results in at least one tool parameter for the ion implant tool. Claim 1 sets forth selecting a fault detection model for an ion implant process to be performed in the ion implant tool based upon the at least one tool parameter resulting from the tuning process and monitoring an ion implant process performed in the ion implant tool using the selected fault detection model. Claim 9 sets forth creating a fault detection model for an ion implant process to be performed in the ion implant tool based upon the at least one tool parameter resulting from the tuning process and monitoring an ion implant process performed in the ion implant tool using the created fault detection model. Claim 15 sets forth determining if the at least one tool parameter resulting from the tuning process is acceptable based on historical metrology data for implant regions formed in at least one substrate subjected to an ion implant process performed in the ion implant tool. Claim 30 sets forth determining if the at least one tool parameter resulting from the tuning process is acceptable based on a comparison of the at least one tool parameter with a collection of tuning setpoint models.

Bode describes processing a plurality of layers on a semiconductor wafer 105 and acquiring metrology data related to the process layers. Control adjustments may be performed

on selected layers such that subsequently processed layers on the semiconductor wafer 105 are not adversely affected. A control tuning process may be performed to attenuate the magnitude of a control adjustment to reduce adverse effects upon subsequently processed layers. See Bode, col. 4, ll. 31-44. The control tuning process described by Bode may utilize data produced by a fault detection and classification unit 320. See Bode, col. 5, ll. 22-20 and Figure 3. However, Bode does not describe or suggest many of the features of the present invention.

With regard to independent claim 1, Bode fails to teach or suggest selecting a fault detection model. In particular, Bode is completely silent with regard to selecting a fault detection model for an ion implant process to be performed in the ion implant tool based upon the at least one tool parameter resulting from the tuning process. Bode also fails to teach or suggest monitoring an ion implant process performed in the ion implant tool using the selected fault detection model.

With regard to independent claim 9, Bode fails to teach or suggest creating a fault detection model. In particular, Bode is completely silent with regard to creating a fault detection model for an ion implant process to be performed in the ion implant tool based upon the at least one tool parameter resulting from the tuning process. Bode is also completely silent with regard to monitoring an ion implant process performed in the ion implant tool using the created fault detection model.

With regard to independent claim 15, Bode fails to teach or suggest determining if at least one tool parameter resulting from a tuning process is acceptable based on historical metrology data for implant regions formed in at least one substrate subjected to an ion implant process performed in the ion implant tool.

With regard to independent claim 30, Bode fails to teach or suggest determining if at least one tool parameter resulting from a tuning process is acceptable based on a comparison of the at least one tool parameter with a collection of tuning setpoint models.

For at least the aforementioned reasons, Applicants respectfully submit that the present invention is not anticipated by Bode and request that the Examiner's rejections of claims 1-6, 8-12, 14-19, 22-32, 36, and 39-45 under 35 U.S.C. 102(e) be withdrawn.

With regard to the Examiner's obviousness rejections, Applicants respectfully submit that Bode is not available as prior art for any obviousness determination regarding the instant patent application. According to MPEP §706.02(I)(1), "effective November 29, 1999, subject matter which was prior art under former 35 U.S.C. 103 via 35 U.S.C. 102(e) is now disqualified as prior art against the claimed invention if that subject matter and the claimed invention 'were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.' " The present application was filed on or after November 29, 1999. Furthermore, the present application and Bode were, at the time the present invention was made, owned by the same entity or subject to an obligation of assignment to the same entity. Thus, Applicants respectfully submit that Bode is not available as prior art in any obviousness determination and therefore the Examiner's rejections of claims 7, 13, 21, and 38 are improper and should be withdrawn.

In the Office Action, the Examiner objected to claims 20, 33-35, and 37 as being dependent upon a rejected base claim but indicated that these claims include allowable subject matter. In view of the above arguments, Applicants respectfully submit that the base claims are allowable over the prior art of record and therefore claims 20, 33-35, and 37 are also allowable. Applicants request that the Examiner's objection to claims 20, 33-35, and 37 be withdrawn.

For the aforementioned reasons, it is respectfully submitted that all claims pending in the present application are in condition for allowance. The Examiner is invited to contact the undersigned at (713) 934-4052 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,

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